REMARKS

Claims 22-51 personally appear in this case. No claims have been allowed. The Official Action of December 11, 2003, (the fifth Official Action in this case) has now been carefully studied. Reconsideration and allowance are hereby respectfully urged.

Briefly, the present invention relates to a method for the treatment of viral infections by the administration of interferon via oromucosal contact. The dose is a high dose which is greater than 20 x 10^6 IU of interferon for a 70 kg human, preferably greater than 30 x 10^6 IU of interferon, which dose is in excess of a dose of the same interferon which induces a pathological response when parenterally administered.

Claims 36 and 38-51 have been rejected under 35 U.S.C. §112 second paragraph as being indefinite. The examiner states that there is no antecedent basis in claim 36 for the proviso which recites "intranasally" and that there is no antecedent basis in claim 36 for the recitation "intranasally" in claims 39 and 40. The examiner states that it is not seen how "oromucosal" could include intranasal. This part of the rejection is respectfully traversed.

Claim 36 specifies that the interferon is administered "via oromucosal contact", i.e., contact with the mucosa lining the mouth and throat of the recipient mammal. However, it is not inconsistent to achieve such oromucosal contact by intranasal delivery. As stated at page 12, lines

11-12, of the present specification, the interferon may be administered by any means that provides contact of the interferon with the oromucosal cavity of the recipient. Later in the paragraph it is indicated that such delivery may be by nasal drops or sprays, and that persons skilled in the art would recognize that, for aerosol or nebulizer formulations, particle size may be important. In other words, small particles may bypass the oromucosa and go directly to the lungs, while larger particles may fascilitate deposition in the mouth and throat. Furthermore, page 17, lines 16-22, of the present specification clearly states that administration of the interferon preparation deep into the nasal cavity permits rapid distribution into the oromucosal cavity, i.e., the mouth and throat of the recipient mammal, so as to make contact with the mucosa lining this cavity. Thus, it clear to anyone of ordinary skill in the art reading the present specification that administration via oromucosal contact may be achieved by means of intranasal delivery. Thus, the claims are not indefinite and are internally consistent. Reconsideration and withdrawal of this part of the rejection is respectfully urged.

The examiner states that when a rhinoviral infection is treated there is no antecedent basis in claim 36 for the dosage regimen in claim 38. This part of the rejection is also respectfully traversed.

Claim 38 is dependent from claim 36 and is thus subject to the same provisos as are specified in claim 36.

However, claim 36 does not exclude administration by either oral or nasal delivery in a single unit dose, even when the virus is a rhinovirus. The language of claim 36 has now been clarified in this regard. Claim 38 specifies that the effective dose is administered in a single dose. This is fully consistent with claim 36. Reconsideration and withdrawal of this part of the rejection is therefore respectfully urged.

The examiner states that the intent of the recitation in claim 38 "administered in a single dose which is not a multiple or continuous dose" is not understood. The examiner asks whether it is the intent that the mammal receive only one dose and never again receive another dose. This part of the rejection is respectfully traversed.

Claim 38 has now been amended to specify that the effective dose is administered in a single unit dose, which is not a plurality of smaller doses administered over of a period of time sufficient to elicit a response equivalent to that of a single unit dose, and which is not administered continuously over a period of time sufficient to elicit a response equivalent to that of a single unit dose. Support for the concept of unit dosage form may be found at page 7, lines 11-14, of the present specification. Thus, it is just the effective dose that is administered in a single unit dose. This is to say, over a period of time a plurality effective doses, i.e., a plurality of single unit doses, may be provided. The claim is clear, however, that the single unit

dose is as opposed to a plurality of smaller doses administered over a period of time sufficient to elicit a response equivalent to that of a single unit dose or a continuous administration over a period of time sufficient to elicit a response equivalent to that of a single unit dose. It is therefore submitted that, as amended, claim 38 is clear and definite. Reconsideration and withdrawal of this part of the rejection is therefore also respectfully urged.

Claims 36 and 37 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Eby, III. The examiner states that this reference discloses a method for treating rhinovirus in a human by administrating a lozenge to the oral mucosa comprising 20 x 10^6 IU of interferon. The examiner states that the claims differ from Eby in reciting greater than 20 x 10^6 of interferon. However, the examiner states that it would be obvious that the amount of interferon in a lozenge would not necessarily have been exactly 20 x 10^6 IU of interferon, but that some lozenges would have had more interferon and therefore would have had "greater than about 20 x 10^6 of interferon." This rejection is respectfully traversed.

First of all, the examiner is incorrect with respect to claim 37. Claim 37 requires that greater than about 30 x 10^6 IU of interferon is administered. This is 50% more than that administered by Eby and would not fall in the normal range of error in making a 20 x 10^6 IU dosage. Thus, claim 37 is clearly distinguishable from Eby, and it would not have

been obvious to anyone of ordinary skill in the art reading Eby to administer such a substantially larger amount of interferon.

With respect to claim 36, this claim is distinguishable from Eby not by the dosage but by the provisos that are set forth therein. Eby specifically states at column 5 lines 43-53:

> This inventor teaches that all ... interferons ... must be administered to the roof of the mouth, the interior cheeks of the mouth, the tongue, the oromucosa, the oralpharyngeal mucosa and all other interior surfaces of the mouth and to the throat, about each 1 to 3 hours, in a suitable manner and <u>in a sustained way for any common cold treatment to be effective.</u>

Furthermore, at column 5, lines 27-42, Eby excludes nasal delivery. Claim 36 excludes the treatment of rhinovirus in a sustained way by oral delivery. As Eby clearly teaches that it must be administered through the mouth in a sustained way in order to be effective, claim 36 is distinguishable from Eby, as has been acknowledged earlier in the prosecution of this case. Reconsideration and withdrawal of this rejection are therefore respectfully urged.

Claims 22 to 51 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Amgen. The examiner states that Amgen discloses a method of treating viral infections using greater than about 20 x 10^6 of interferon. While the present claims require administration by oromucosal contact, the examiner states that Amgen discloses that the interferon

can be administered nasally and that it is well known that products administered intranasally will contact the oromucosa. The examiner also states that from the recitation of "intranasally" in claim 36 and in the specification (page 12, lines 15-19), nasal administration is contemplated in the instant invention. The examiner states that the specific dosage regimens of claims 22-24 and 38-40 are within the skill of the artisan, and that no unobviousness is seen in the use of Type II interferon as is claimed in claims 28 and 44-45. Similarly, the examiner states that the dosage as recited in claims 30-32 and 46-48 is obvious from Amgen as it is within the skill of the artisan to determine an optimum dosage, and that the specific viral conditions of claims 35-51 are within the scope of Amgen. This rejection is respectfully traversed.

Amgen describes the use of IFN-consensus (IFN-con) as a way of reducing IFN specific side effects. While parenteral administration is generally preferred and is used in the examples (subcutaneous injection; page 19, line 3), the possibility of "oral or nasal routes" is mentioned on page 13, lines 26 and 27.

The teaching of Amgen is directed at the therapeutic effect of IFN-con in the bloodstream. This is generally achieved by parenteral routes (i.e. injection), but "oral and nasal routes" are mentioned as possible alternatives. The IFN-con needs to enter the bloodstream via these alternative routes in order to produce the effects observed for parenteral administration. For example, the oral route will involve the

absorption of the IFN-con in the gut. In the case of oromucosal administration, however, IFN does not enter the bloodstream (see page 27, lines 9-12, of the present specification as well as the paragraph bridging pages 33 and 34). Thus, administration "via oromucosal contact" is not an "oral or nasal route" for administering IFN into the bloodstream as taught by Amgen. The present claims are therefore novel over the teaching of Amgen. As independent claims 36 and 37 have been shown to be patentable over Amgen, all of the dependent claims must also be patentable for the same reason. Reconsideration and withdrawal of this rejection is therefore respectfully urged.

Claims 22-51 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Amgen in view of Feinberg. The teaching of Amgen as discussed above is relied upon in this rejection. Feinberg is cited for the obviousness of many of the dependent claims. This rejection is respectfully traversed.

The examiner does not take the position that Feinberg adds anything to the deficiencies of Amgen with respect to claims 36 and 37. Feinberg does not teach anything about oromucosal administration. Accordingly, reconsideration and withdrawal of this rejection for the same reasons as discussed above with respect to the rejection over Amgen alone are also respectfully urged.

It is submitted that all of the claims now present in the case clearly define over the references of record and

fully comply with 35 U.S.C. § 112. Reconsideration and allowance are therefore earnestly solicited.

Respectfully submitted,

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